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ABSTRACT

A Scalpel Instead of a Sledgehammer: A Comparative Cultural Study on Preparing for Future Conflict by MAJ Michele G. Ritchie, Transportation Corps, 42 pages.

Intrinsic to the safety, maintenance, and status of the United States is conflict preparedness. Fundamental to conflict preparedness is anticipating future uses of the national instruments of power (Diplomatic, Informational, Military, Economic) throughout the spectrum of conflict against potential enemies. To frame these strategies, government leaders must suppose what future conflict will be. To envision future conflict, one must study man and his societies as they are today and what brought them to their present situations. In anticipating future conflict and modeling scenarios for future uses of American diplomatic, informational, military, and economic power (DIME), one is able to formulate how to set the conditions for success and what the future Army should look like in order to effect this success at the tactical, operational, and strategic level.

This monograph seeks to define future conflict, its centers of gravity, and the appropriate force skill sets, thus providing government leaders with an appreciation of how conflict has evolved, what characterizes it today, and the nature of forces that are necessary to thwart potential problems.

The study concludes that to remain strong, the United States must cast off its comfortable, torpid constructs of conflict in an industrial world and embrace the possibilities that come with the tumultuous new age of information. Incompatibility and friction between the colliding waves of change characterize cultures today and are a constant theme in understanding the dynamics of conflict. Only through understanding past, current, and future societal changes can the United States be prepared for the conflict of today and tomorrow that is a complex clash of dissimilar cultural waves. Success at the tactical, operational, and strategic level requires a trimmer, more efficient, responsive Third Wave Army on call for future Gumby warfare and the ethos of flexibility, cultural sensitivity, and technological savvy it demands. If these new skill sets and Information Age roles and missions, force structure, command and control, power projection, use of technology, and logistic competencies are not mastered then the inflexible Industrial Age Army of today will allow the new world order to pass it by.

A Scalpel Instead of a Sledgehammer:
A Comparative Cultural Study on Preparing for Future Conflict

A MONOGRAPH
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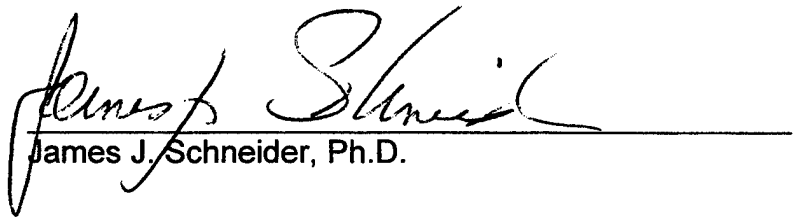

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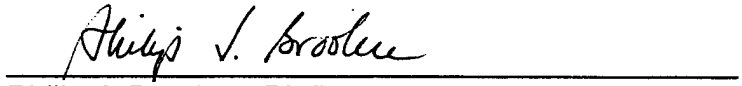

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CHAPTER ONE

Introduction

> "Now here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!" [1]
>
> Lewis Carroll

The United States of America, as the world's sole remaining superpower, ought to heed the sage advice of Lewis Carroll's Red Queen and assiduously work to keep its hierarchical place in the society of man. Intrinsic to the safety, maintenance, and status of the United States is conflict preparedness. Fundamental to conflict preparedness is anticipating future uses of the national instruments of power (Diplomatic, Informational, Military, Economic) throughout the spectrum of conflict against potential enemies. To frame these strategies, government leaders must suppose what future conflict will be.

To envision future conflict, one must study man and his societies as they are today and what brought them to their present situations. As Sun Tzu wrote many centuries ago: "[k]now the enemy and know yourself; in a hundred battles you will never be in peril."[2] There are many questions one must answer in analyzing the United States, its allies, and its potential adversaries: What are the significant recent

societal changes? What are the new characteristics of the present age? How has conflict evolved throughout the millennia? What are the recent trends in conflict around the world? What is the role of localized values in terms of conflict? Are there globally accepted norms to conflict behavior?

In anticipating future conflict and modeling scenarios for future uses of American diplomatic, informational, military, and economic power (DIME), one is able to formulate how to set the conditions for success and what the future Army should look like in order to effect this success at the tactical, operational, and strategic level. What will characterize future conflict? What will centers of gravity look like? What will be the appropriate force skill sets? This monograph seeks to answer these questions and thus provide government leaders with an appreciation of how conflict has evolved, what characterizes it today, and the nature of forces that are necessary to thwart potential problems.

To remain strong, the United States must cast off its comfortable, torpid constructs of conflict in an industrial world and embrace the possibilities that come with the tumultuous new age of information. Incompatibility and friction between the colliding waves of change characterize cultures today and are a constant theme in understanding the dynamics of conflict. Only through understanding past, current, and future societal changes can the United States be prepared for the conflict

of today and tomorrow that is a complex clash of dissimilar cultural waves.

CHAPTER TWO

Hoes, Assembly Lines, and Computers

"Perfection of means and confusion of goals
seem—in my opinion—to characterize our age."[3]

Albert Einstein

To understand the present age one must look at its historical and current context. Carl von Clausewitz in *On War* wrote of the importance of studying warfare with respect to culture and environment. He wrote:

> ...[E]very age had its own kind of war, its own limiting conditions, and its own peculiar preconceptions. Each period, therefore, would have held to its own theory of war, even if the urge had always and universally existed to work things out on scientific principles. It follows that the events of every age must be judged in the light of its own peculiarities. One cannot, therefore, understand and appreciate the commanders of the past until one has placed oneself in the situation of their times, not so much by a painstaking study of all its details as by an accurate appreciation of its major determining features.[4]

Alvin and Heidi Toffler have long been in the business of defining the world and the revolutionary changes humans have endured. Prolific writers and speakers on the subject of societal change and futurists embraced by the Army leadership for many years, the Tofflers coined the phrase "future shock" and added the familiar terminology of "First, Second, and Third Wave" to the common lexicon.[5]

Describing human epochs of societal change in terms of "waves" accurately defines them in a visual and conceptual sense. Dynamic in nature, societal changes overlap one another, gather momentum as they gather followers, consist of cumulative changes over time, and "crash" into civilizations causing revolutionary upheavals. Man's waves of societal changes have been just such momentous upheavals.

The First Wave began with man's beginning and his first societal culmination. As nomadic hunter–gatherers, early man represented the beginning of humans organizing themselves into families, clans, and tribes. As the families, clans, and tribes grew, the ability to feed the group by foraging became impossible. Thus, early man began to create more permanent hearth sites; agriculture and animal husbandry became the lifestyle. Surplus was used within a limited barter system to acquire goods or services that were otherwise unavailable.

Represented by the hoe, the First Wave embodies the agricultural revolution approximately ten millennia ago when the hunter-gatherer societies became agrarian.[6] Warfare, consequently, was seasonal and often waged by small, usually mercenary, forces. Slow to gather momentum, the First Wave spread across the globe as man evolved along the production continuum from subsistence to barter economies to limited urbanization.

Self perpetuating and autocatalytic in nature, the wave of change into man's second revolutionary upheaval occurred at the end of the

seventeenth century. Excess food production, time saving inventions, and labor saving devices made urbanization possible; urbanization created the conditions for continued and growing urbanization and industrialization. This, the Industrial Revolution, launched the Second Wave.

Characterized by the assembly line, the Second Wave represented an era of accumulation, mass production, growth of the middle class, and new wealth.[7] Within most cultures, the family (often extended family) was the fabric that kept groups together and at peace. It was during this time that the family unit began to recede in importance and nationalism and ethnicity became the "common denominators" within societies. During this growing "mass" age of mass economies, mass production, conscription of mass armies, interchangeable parts, and interchangeable citizens, the world paid homage to the supreme deity of standardization and began to wage war as nations in arms.

Unlike the Second Wave with its rapid revolution of industrialization and change, the Third Wave has not had such an auspicious and obvious beginning. Instead, the Third Wave is a tidal wave of societal change whose momentum is increasing exponentially over time. Little did the world know that when ENIAC, the first fully electronic digital computer, was completed in 1946 and computer scientist and naval officer Grace Hopper developed the first compiler, to translate programming language into binary machine code, in 1951 that

the world was changed forever.[8] These seemingly small steps were actually the impetus for giant leaps for mankind. Having impacted cultures from the way one purchases airline tickets to the destruction of the traditional methods of evaluating securities, the computer is catalyst and symbol of the Third Wave.[9]

The Third Wave, often referred to as the Information Age, is society "de-massified"[10] and conversely borderless. Rather than producing copious quantities of standard items, factories are customizing assembly lines thus catering to firms' specific needs, just-in-time supply chain requirements, and a resurgence of custom retailing. In the Information Age, the sinew of ether and fiber optics replaces the mortar and steel that built the industrial age. Developing nations with poor or nonexistent infrastructures are realizing that it is easier, cheaper, and faster to make the quantum leap past capital intensive industrial age infrastructures directly to cellular and other Third Wave technologies.

While production shrinks to customization, economics is expanding with a global character. Nationalism is waning while universalism is on the rise. Transcending traditional boundaries, an Information Age identity is replacing that of ethnicity or the state. The new global currency is electronic transfers. The formation of the European Union[11] with a common currency, the Euro, exemplifies the dissolution of the nation-state. Argentina basing its currency on the United States Dollar also represents a significant shift in universalism

over nationalism. A global sub-culture, the information savvy workers of the Third Wave speak a common tongue of software coding language and pledge allegiance to a common fiscal utopia typified by negative unemployment and fierce global competition for skills and services. With such a sea state change in societies, the Third Wave undoubtedly transforms conflict and waging peace as well.

Interestingly, each of these waves of change is still ongoing as the next wave begins and expands. In the decades after World War II, while the United States and other industrialized nations have been negotiating the significant innovations/obstacles of the Third Wave and their neighboring nation states are a mixture of First, Second, and Third Wave societies, the Yąnomamö in the Amazon basin have not yet embraced a First Wave agrarian lifestyle. Spanning the globe, societies are embracing agrarian, industrialized, and information technology cultures simultaneously, sequentially, quickly, and slowly.

Though moving at vastly different rates, these three distinct waves of societal change uncomfortably coexist and are a significant factor in social unrest. With the pounding surf of change comes the inevitable torrent of cultural clashes. Culture, defined as "the total way of life of a discrete society – its religion, myths, art, technology, sport, and all the other systematic knowledge transmitted across generations,"[12] is the web of memes[13] that guides behavior. With the changing memes, or building blocks of culture, of a society comes the evolution of conflict. In order to

prepare for conflict in the future one must examine these memes as they have evolved over the millennia during periods of societal change and trace their evolution in exploring the possibilities of conflict today and tomorrow.

CHAPTER THREE

Pikes, Machine Guns, and Data

> "Thus it is cultures which ultimately make war; states simply act out cultural predispositions. In short, cultures... are better variables for understanding how nations behave in peace and war than governments. They are more enduring in time, more comprehensive, deeper."[14]
>
> Dr. Lawrence E. Grinter

The changes in how man wages war are inextricably linked to the upheavals of societal change that are the First, Second, and Third Waves. Warfare has changed enormously over the ages as societies have embraced new memes, and cultures have undergone tremendous reorganizations and shifts in orientation. Unique to each wave of change, these memes can be categorized in the areas of logistics, command and control, communication, technology, compensation, and boundaries.

Hunter-gatherer cultures underwent revolutionary changes as they established permanent settlements and adopted an agrarian lifestyle. Though early man engaged in conflict, actual warfare is often attributed to the rise of First Wave societies to the present. Kenneth Boulding, an economist and peace activist, wrote that war is "quite distinct from mere banditry, raiding, and casual violence...It requires... a surplus of food

from agriculture collected in one place and put at the disposal of the single authority."[15] With the domestication of animals and plants, First Wave citizens were able to create surplus and generate commerce. This provided both the ability and the impetus to wage war -- the ability to store surplus in order to feed armies and the need to wage war in order to protect or extend commerce.

The connection between killing and tilling was incontrovertible. As Lord Shang wrote in ancient China in the third century BC, "The country depends on agriculture and war for its peace.... If he who administers a country is able to develop the capacity of the soil to the full and to cause the people to fight to the death, then fame and profit will jointly accrue."[16] The very nature of the First Wave, and its contrast to nomadic peoples that preceded it, was at the root of defining warfare in First Wave societies.

Warfare in agrarian societies was, like the economy, run on a shoestring. Though there were food surpluses, they were not great and the manpower necessary to work the land accounted for over ninety percent of the male population.[17] Each individual often provided his own rations for the short term followed by predatory logistics.[18] "The army, like the economy itself, lived off the land."[19] Soldiers for the army usually were either foreign mercenaries or volunteer farmers in between harvests and plantings. Seasonal war fighting had to be scheduled among seasonal agricultural obligations. Even in sophisticated Greek

culture "[t]he harvest demands of the triad...--the olive, the vine, and grain -- left only a brief month or two in which these small farmers could find time to fight."[20] The enemy had to be brought to battle expeditiously because farmer/warriors seldom had the luxury of attrition warfare.

The time dimension in warfare also reflected the culture in terms of dominance hierarchies and associated command and control. "The sovereign of a feudal country did not possess a monopoly of military action. As a rule, he could mobilize his vassals for a limited period only, at first perhaps for three months and later for forty days, the holders of small fiefs often serving only for twenty or ten days, or even less."[21] As an exception to seasonal time limits and control constraints, the Roman Empire usually reflected the situation at the other (large and powerful) end of this continuum of centralized power within a fundamentally agrarian society.

Because soldiering was usually a seasonal occupation, weaponry by necessity, was common and required little training. Government was decentralized; concomitantly, supplying and equipping armies was decentralized. In addition to providing their own transportation, soldiers normally outfitted themselves with weapons and armor, rather than relying on a central supply system. There were exceptions like the English Longbow -- a weapon used by expert, highly trained men who endured rigorous, specialized training most of their lives. "Agrarian hand labor was mirrored in hand-to-hand combat... the basic mode of warfare

involved face-to-face killing, and soldiers were armed with weapons – pikes, swords, axes, lances, battering rams – dependent on human muscle power and designed for close combat."[22] However, principally weaponry was limited to items commonly used and obtained by individuals within the culture.

Compensation for services also reflected the society in which the fighting was done. When it came to receiving a paycheck, First Wave warriors received their payment usually in kind and, often in the case of officers, with land. "In medieval Spain and as late as the early nineteenth century in South America, land was still being paid to warriors in lieu of money."[23] In feudal China, victorious officers were rewarded with grain, slaves or even "a tax paying city of 300 families."[24] Intrinsic to maintaining life and prosecuting war, land and the population were a culture's most important resources.

As limited resources reflected First Wave cultures, so did the span of influence and the culture's boundaries. The furthest boundaries of cultivated land represented a society's sphere of influence. Communications were slow and difficult, rarely traversing those outward boundaries. As in the case of the adventures of Alexander III of Macedon conquering peoples from Illyricum to India, some societies were more far-flung than others. However, in the case of typical decentralized agrarian societies of the First Wave, their "world" was a narrow and easily defined one indeed.

"In brief, First Wave wars bore the unmistakable stamp of the First Wave agrarian economies that gave rise to them...Starting with the very invention of agriculture, every revolution in the system for creating wealth triggered a corresponding revolution in the system for making war."[25]

The next revolution to bombard the society of man was the Second Wave. The Industrial Revolution launched a wave of social upheaval that left cultural memes strewn about the world in many new shapes and sizes. Just like the First Wave, these enormous cultural transformations in societies were reflected by significant changes in how man waged war, made wealth, increased his tax base, and organized. Warfare went from being tied to the land to being tied to the assembly line.

Instead of soldiers supplying and equipping themselves and living off the land, war became big business and entire societies were affected. Logistically, armies created elaborate supply systems that connected the nation's industrial base to the soldier-consumer in the foxhole. Industrialization brought with it the standardization and interchangeable parts that allowed armies to shoot the same weapons, use the same bullets, wear the same clothes, and establish supply lines from home.

"Just as mass production was the core principle of industrial economies, mass destruction became the core principle of industrial-age warfare."[26] With industrialization came new and improved weapons that allowed man's inhumanity to man reach overwhelming proportions.

Machine guns, rifling, tanks, chemical weapons, atomic bombs, and aerial delivery of ordnance were examples of the new technologies that allowed killing on a new, unforeseen scale. "Relying on its industrial base for victory, the United States during World War II not only sent 15 million men to war, but mass-manufactured nearly 6 million rifles and machine guns, over 300,000 planes, 100,000 tanks and armored vehicles, 71,000 naval vessels, and 41 billion...rounds of ammunition."[27] The Nazi concentration camps, Allied bombing of Germany in World War II, the death tolls on the Somme in World War I and Nagasaki in 1945 relayed to the world just how huge and horrible warfare had become. Even the militaries themselves, because of enormous potential production capacity, economic "slack" and market surplus, were able to muster large, trained and equipped forces.

No longer tied to a seasonal timetable for sustenance or manpower, nations (not individuals or loosely organized fiefdoms) organized standing, professional armies, navies, and air forces. "Mass production was paralleled by the *lévee en masse* – the conscription of mass armies paid by and loyal not to the local landowner, clan leader, or warlord, but to the modern nation-state...the idea of a whole nation in arms...which roughly marked the crisis of the old agrarian regime and the political rise of a modernizing bourgeoisie."[28] Japan introduced the draft after the Meiji Revolution; the United States and France introduced the draft during their civil wars.

Command and control in these new, industrial armies was no longer left to inbred, untrained aristocrats. Standing national armies became the norm, though often significantly smaller during peacetime. Nations began offering training for their officer corps. Just as a division of labor was becoming *de rigueur* in the civilian sector, the military was putting increased emphasis on specialties within the enlisted and officer ranks. Many nations copied the French system of training officers for senior command, called *état-major*. Japan founded its military academy in 1875; the United States established the School of Application of Infantry and Cavalry at Fort Leavenworth, Kansas in 1881.[29] The Prussian General Staff, with its system of creating specialized, expert staff officers came into being and was widely copied. Training was increasingly necessary for all military men as communications and distribution became larger and more complicated.

With larger armies, larger distribution requirements, and larger communications networks came an increased span of control and area of concern for industrial national armies, compared to that of agrarian forces. A far cry from messengers on foot, the telegraph, radio technology, trains, and trucks of the Second Wave all contributed to "growing the battlefield." Nationalism, though, was the watchword of the day and a nation's borders protected its most prized possession – the industrial base. Militaries were raised and maintained to perform internal defense both at home and in the state's territories abroad. With

the advent of telephones, telegrams, radios, airplanes, jet propulsion, turbine engines, the telegraph, and television, the area of interest and influence for an industrial nation (its boundaries) grew to include foreign interests of an economic or colonial nature. National supply systems and networked regional economies also contributed to the expansion of industrial nations' reach and influence.

Compensation for soldiers in Second Wave militaries mirrored the robust, ordered economic structure of the age. Cultural memes, like a barter economy tied to agriculture or intrinsically valuable coin, were replaced by free market mass economies and paper money. Mass militaries were paid by massive bureaucratic pay systems and compensation was figured by standard, published pay scales. Indeed, the assembly line Second Wave culture produced millions of conforming, unthinking George Babbitts. The Third Wave culture will set them free.

As are the previous two waves of societal change, the Third Wave also is identified with significant changes in creating wealth and significant corresponding changes in creating war. The Third Wave marks the shift of cultural memes from brawn-based survival of the fittest to brain-based survival of the fittest. The cultural changes of the Third Wave revolve around an information economy in a data saturated world that has enormous implications in how man will wage war.

Reflecting the new, customized, just-in-time civilian logistics practices of the day, Third Wave militaries too are engaging in "focused

logistics" and distribution based supply systems relying on velocity and total asset visibility to precisely and rapidly respond and support forces engaged around the world. The cultural memes of hording and stockpiling are being replaced with ideas like flexibility, precision, mobility, streamlining, and sufficing. Waging war and responding to conflict with logistic support are moving from an age of eating like an anaconda, with large masses of matériel moving down a supply snake in the dark, to a transparent system smoothly moving tailored packets of matériel along an automated, integrated supply channel.

Even the massive bureaucratic pay systems of the military services of the Second Wave have undergone a facelift and reduction. Like the downsizing of AT&T and IBM in the last twenty years, the Department of Defense too has consolidated the various paymasters into the Defense Finance and Accounting Service and required military members to receive virtual pay into their bank accounts. On a global scale, many militaries of the information age are compensated for their services from the United Nations, their own nation, and in the future perhaps other sponsors with virtual paychecks.

The cultural memes in the category of compensation are not the only memes mirroring society's changes. Information age militaries are looking to technology to build better mousetraps – or munitions. "...Third Wave weapons [are] designed for pinpoint accuracy, customized destruction, and minimal 'collateral damage.'"[30] Lethality is efficient

instead of overwhelming -- effects over obliteration. Although the Coalition engaged in Second Wave carpet-bombing during Desert Storm, the world watched with rapt attention as "smart bombs" and stealth technology were used to great effect during Desert Shield and Desert Storm. Like a beach caught in the tempest, the Gulf War felt the undertow of the receding industrial age and the rolling waves of the advancing information age. The militaries of the Third Wave are embracing technology and integrating it throughout the battlefield. From digital command and control information systems to unmanned vehicles to high-tech clothing, information age militaries are capitalizing on the power of networks, a common shared visibility/operating picture, and instantaneous all sensory communications.

Just as technological improvements engendered change in First and Second Wave societies, modern technology is the impetus behind the memes that have undergone enormous change in the realm of Third Wave warfare – the size of armies, communications, and boundaries. The enormous standing armies of the Industrial Age are now replaced with smaller forces imbued with force multiplying, technologically advanced weapons, clothing, and accoutrement. While Third Wave armies are smaller in number, the size of the battlefield has grown and become empty because of the lethality of weapons, advances in communications, and the span of command of control. Modern cellular technology, visual telecommunications, ever-smaller digital radios, and

satellite technology are among the powerful new tools available for soldiers and a portent of the dispersion and common operating picture capabilities possible in the future. The boundaries of this Third Wave world are tied to economics. Communications make the world borderless but economic exploitation is the limiting factor. A Third Wave society's economic frontier defines its boundaries and area of interest.

Each wave of change metamorphosed the memes of warfare categorized in the areas of logistics, command and control, communication, technology, compensation, and boundaries. Understanding these tides of change within each of these unique areas of the First, Second, and Third Wave cultures is fundamental to understanding warfare in the world today and in the future. The planet's peoples are not a homogeneous group. Each wave of change has not done a sequential, universal transformation the globe. The trisected world of today and tomorrow, with contemporaneous First, Second, and Third Wave societies, is one fraught with the instability of clashing cultural waves.

CHAPTER FOUR

A Trisected World and Conflict Mismatch

> "Wars are not tactical exercises writ large. They are ...conflicts of *societies*, and they can be fully understood only if one understands the nature of the society fighting them. The roots of victory and defeat often have to be sought far from the battlefield, in political, social, and economic factors which explain why armies are constituted as they are, and why their leaders conduct them in the way they do."[31]
>
> Michael Howard

Until all cultures belong to information societies, conflict is inevitable. Growing and evolving at vastly different rates, the First, Second, and Third Waves of societal change are a significant factor in global unrest. The collisions of their memes are what wars are made of. With the pounding surf of change comes the inevitable torrent of cultural clashes.

> Thus, while poets and intellectuals of economically backward regions write national anthems, poets and intellectuals of Third Wave states sing the virtues of a "borderless" world and "planetary consciousness." The resulting collisions, reflecting the sharply differing needs of two radically different civilizations, could provoke some of the worst bloodshed in the years to come.[32]

But how does one prepare for future war? The answer begins in the past and ends in the future. The vestigial reasons for conflict cannot

be ignored or forgotten. Agrarian societies will still wage war over ethnicity, religion, oppression, and land. Industrial societies will still wage war kindled by the spark of nationalism over perceived inequities in the global or regional dominance hierarchies and over land. Information societies wage war over market share, access to resources, and knowledge.

The age of globalization and information has changed the paradigm of strategic resources, transnational interests, and centers of power. No longer working within a brick and mortar market place, much of the world works within a global economy that transcends national boundaries. The absence of a monolithic threat and the advent of information technology also reduce the importance of the nation-state. The currency of the Information Age is data. Instead of capital and labor, information is the new strategic resource. Geographic transparency and economic interdependence make fighting future conflicts all together new in terms of why men fight. Why the trisected world wages war remains largely unique to each society. Cultural memes are slow to evolve while technological enablers are quickly accepted and influencing.

Integral to the changing cultural memes of the Third Wave are the global village attitudes of the Information Age citizens of the world. This attitude is clearly seen as well in how man will wage war. Transcending traditional boundaries, Information Age societies are becoming borderless often without a strong traditional ethnic or national identity.

The area of concern, influence, and interest of Information Age societies is therefore limitless. Unlike industrial societies, their area of concern, influence, and interest extends from space to the ocean floor and around the globe. Every market, every home, every idea is a potential area of engagement. Appellations are no longer national and instead are networked entities with regional, economic, or security bonds. Though a fledgling idea, as much of the world is only beginning to embrace the Information Age, examples can be seen in the North Atlantic Treaty Organization becoming a wartime command for the war in Bosnia and Kosovo and the Gulf War coalition that was formed under the auspices of the United Nations.

Economies too are growing in global proportions, with the compensation for militaries growing with them. No longer cash economies, Third Wave societies fight virtual wars and pay with virtual money. The new global currency is electronic transfers and just such information becomes a key decisive point for a society.

On the planet, many cultures are in the throes of Third Wave metamorphosis. Emboldened with the rush of new technology and the power of modernization, Third Wave cultures are boldly engaging the rest of the world to create a peaceful, symbiotic global village. Unfortunately the cultural memes of the Information Age, like universalism and virtual economic boundaries, are often contradictory and rather threatening to Second and First Wave societies. Third Wave societies have not yet

waged war against one another; conflict normally stems from strident Second Wave nationalism or the autocephalous First Wave colliding with one another or the Third Wave.

The why of warfare today stems from the trisected world. It is the how of warfare that is becoming increasingly complex. With First and Second Wave cultures embracing accessible Third Wave technologies, conflict in the present age and the foreseeable future is a mixture of clan/agrarian small-scale efforts, industrial mass warfare, and highly sophisticated information operations and smart technology.

How man wages war is changing not solely because of the technology but because of the new concepts in creating weapons that use the technology. Qiao Liang and Wang Xiangsui, senior Chinese colonels in the Peoples Liberation Army, wrote on this subject in a book proposing unconventional tactics and strategies to use against superior forces. They advocated

> ... a new concept of weapons... a view of weapons in the broad sense, which views as weapons all means which transcend the military realm but which can still be used in combat operations. In its eyes, everything that can benefit mankind can also harm him. This is to say that there is nothing in the world today that cannot become a weapon... a single man-made stock-market crash, a single computer virus invasion, or a single rumor or scandal that results in a fluctuation in the enemy country's exchange rates or exposes the leaders of an enemy country on the Internet...

What Qiao and Wang also noted was that the United States, since the development of AirLand Battle, first develops a mode of combat and then

develops the weapons to fit it. "This approach indicates that the positions of weapons is invariably preceding a revolution in military affairs has now been shaken, and now tactics come first and weapons follow, or the two encourage on another..."[33] How a culture wages war determines its choice of weapons and exposes its center of gravity.[34]

A world with societies slowly adopting new cultural memes and more quickly adopting limited, Third Wave military technologies is creating new adversaries, threats, and centers of gravity. The cacophony of memes competing to propel societies forward into the Information Age or straining to hold them on their agrarian or industrial societal foundations is deafening. Threats are coming from all directions including from within. The military, as the nation's security provider, now must evolve to defend the economy and technology of the society -- not just its geographical borders. As societies move from brute force to brain force so must the military and those who wield the DIME.

In anticipating future conflict and modeling scenarios for future uses of the DIME, one must consider centers of gravity and associated defeat mechanisms in addition to why, how, and who will wage war. As agrarian cultures, First Wave societies fought decisive battles with small armies, on limited terrain. Strategic centers of gravity for these armies were the armies themselves. Leaders in First Wave cultures relied heavily on diplomatic and military instruments of power as the

army served directly for those in charge and the land worth fighting for was inextricably linked to those in charge.

In contrast to the narrow scope of leadership and warfare in the First Wave, the Second Wave societies fought with large militaries in geographically large theaters with robust, national industrial bases manufacturing abundant matériel. The strategic center of gravity for these militaries was national infrastructure. This assembly-line society fought wars with the intent to effect destruction on a mass scale. Destroying the citizens and infrastructure of the enemy was as important as destroying the opposing military. State leaders relied heavily on military and economic instruments of power as the distinction between military and economic targets was blurred and all diplomatic and informational power had been abrogated to the ultimate weapon – the atomic bomb.

In Third Wave warfare, atomic weapons have become not a decisive bargaining chip or deterrent but instead a necessary entrée to an exclusive club that wields all global power and has the dominant voice in the global village. Ready for every contingency including potentially fighting against First, Second, and Third Wave cultures, Third Wave societies conduct "Gumby warfare" -- "Gumby" in the sense that the Army must be malleable in roles and missions, flexible in force structure, adept in command and control, lithe in power projection, adaptable in cultural settings, and adroit in warfare and logistics across the spectrum

of conflict. The strategic center of gravity for Third Wave societies and militaries is the communications infrastructure, an elusive target but absolutely the hub of all power in Information Age societies.

The trisected world, characterized by competing wave cultures, brings a new calculus to why man fights, how man fights, and the centers of gravity around which he fights. American decision makers must be prepared for conflict between agricultural and industrial societies and the Third Wave United States, as well as among other information societies. The perception of casualty aversion, dwindling popularity of the armed forces, and a shrinking military compel the United States and other Third Wave governments to rely heavily on the diplomatic, economic, and informational instruments of national power.

Often the government uses the military as a last resort in a failing situation when the other instruments of power have not produced a satisfactory outcome. These situations can range from noncombatant evacuations to protecting United Nations food shipments to compelling a belligerent nation to retreat back to its original borders. Sometimes the nation's military is called to do the tasks that are routinely associated with fighting and winning the nation's wars; often it is not. It is these operations falling into the "not" category that are most challenging and are growing in frequency. These operations in the "not" category are Stability and Support Operations (SASO).[35] The trisected world is a prolific breeding ground for SASO.

Not particularly suited for most SASO tasks given to it, the military finds itself doing stability and support tasks merely because there is no other group that can. In terms of force structure and skill sets, the general-purpose forces of the Army are not properly trained or equipped to meet the diverse needs of frequent operations that run the spectrum from agrarian to information-based warfare. This means-ends mismatch is costly and inefficient.

United States involvement in Vietnam well illustrates just such a means-ends mismatch. Many in the Army during the time of the war in Vietnam felt that the policies were not working in general and in particular prior to General Creighton Abrams taking command. Large unit operations, attrition war, unobserved artillery, and huge base camps characterized the conduct of the war during the command of General Westmoreland. After many visits to the area of operations Chief of Staff of the Army General Harold K. Johnson believed "that the attrition war worked against his soldiers more than the enemy...this 'flawed' policy, as he referred to it, was what led to the decision to launch a full study of the war and attempt to turn around a policy that simply was not working."[36]

In the spring of 1965, General Johnson commissioned a study entitled "A Program for the Pacification and Long-Term Development of Vietnam (PROVN)." This thoughtful study looked at the war in Vietnam from a multi-disciplined perspective and made recommendations to prosecute the war protecting the security of the people living in the

hamlets and villages of South Vietnam using counterinsurgency methods, pacification, and long-term development.[37] The study stated "the ultimate objective; a free and independent, non-communist nation. ...[S]uccess will be the sum of innumerable, small and integrated localized efforts and not the outcome of any short-duration, single master stroke."[38] The study suggested "a framework for projecting national effort..."[39] that would match the forces, tasks, and outcome of the war.

Although Creighton Abrams implemented the recommendations in PROVN, from an historical perspective the ultimate loss of South Vietnam to the communist North is a testament to the United States' inability to reconcile Third Wave ends, ways, and means to the reality of First Wave warfare. The Army sent to Vietnam was not the right force then for a burgeoning Third Wave society to pit against a First Wave threat. Recent operations in Somalia, Bosnia-Herzegovina, and Kosovo re-substantiate these same shortcomings. This anachronistic paradigm has resulted in the ossification of force structure, equipment, and skill sets that are little different than the Army of the 1960's.

The anachronistic organizational structure of the Army is modeled after the Industrial Age. A force to mass firepower with massive tables of organization and equipment (TOE), the Army is modeled in an assembly line approach with building blocks that all look the same in people and equipment authorizations. It remains virtually unchanged, except in experimental units, vis-à-vis the modern, Third Wave improvements in

logistics, firepower, mobility, battlefield visualization, and communications.

Future military success requires a trimmer, more efficient, responsive Third Wave Army on call for future Gumby warfare. Clausewitz well describes the Army of the Third Wave by describing how

> ...the fog must thicken and form a dark and menacing cloud out of which a bolt of lightening may strike at any time. These points for concentration will, as we have said, lie mainly on the flanks of the enemy's theater of operations. That is where insurgents should build up larger units, better organized with parties of regulars that will make them look like a proper army and enable them to tackle larger operations.[40]

The bolt of lightening required in the trisected world must be an Army that is the personification of Gumby warfare. Capable of operations from peace operations to full scale war among and against societies spread across the continuum from First to Third Wave, the Army of Gumby warfare must reflect an ethos of flexibility, cultural sensitivity, and technological savvy that matches the mission forces with the conflict type and the task at hand. The preparation for such warfare is intrinsic to the safety, maintenance, and status of the United States.

CHAPTER FIVE

Conclusion

"Information is the oxygen of the modern age. It seeps through the walls topped by barbed wire, it wafts across the electrified borders."[41]

Ronald Reagan

Gumby warfare? How does one prepare for that? The world is composed of societies that are firmly entrenched in or moving between the three waves of societal change. The friction between these waves is often the root cause of conflict today; the resulting change is the root of how conflict "looks" now and will "look" in the future. After examining the evolution of societies and how they wage war, one can now construct the nature of forces that are necessary to thwart potential conflict and set the conditions for success.

Military success in the Information Age depends on remaining flexible enough to react at a moment's notice to the myriad conflict scenario possibilities. Instead of defending the nation's borders, the Information Age Army defends its most vital resource – the connectivity of information systems. This communications infrastructure is the strategic center of gravity and the key enabler for Third Wave technology, access to resources, knowledge growth, and market share preservation. Network centric warfare relies heavily on connectivity enabled by the

communications infrastructure. More and more the Army abrogates it's sense of the battlefield to robots, Unmanned Aerial Vehicles, and other sensors to gather situational awareness. Without these artificial eyes and ears the Army is deaf, dumb, and blind.

The Third Wave Army requires flexible, Information Age roles and missions, force structure, command and control, power projection, use of technology, and logistic competencies. Third Wave armies must embrace effects-based soldiering, unencumbered by old ideas of standardization, mobility, holding terrain, and command and control.

Roles and missions within the United States Army reflect an Industrial Era, assembly line organization prepared for large unit warfare, decisive battles, and peer threats. The Information Age demands a capabilities organized Army with skill sets as building blocks to enable the planner and warfighter to create forces that are just the right size, with just the right skill sets, and just the right mix of weapons systems and equipment. These build-able, expandable unit sets must be reflected in force structure that, instead of being rigid and standardized, is designed to meet the needs of an Army that must fluidly react to requirements along the Offense, Defense, Stability, and Support operations continuum against First, Second, and Third Wave societies.

Reflecting the changes in how the Army is organized and what its roles and missions will be, command and control will necessarily require change to meet the needs of a Third Wave Army in a trisected world.

Command and control must become a less rigid idea in an age of no borders, stand off results, and common operational pictures.

With the new, boundary-less Third Wave world, task organization and private ownership of assets will become passé. As economies, land, resources, and intellectual capital become boundless and belong to all, so will Third Wave militaries in the same way that United Nations troops are the world's enforcers. Parallels will be seen in command as well. Command and control must no longer be hierarchical but become a virtual command with technologically based control. A horizontal system of leadership should stretch across the battlefield as each leader shares a common operational picture and can take over and orchestrate the battle because of a common, complete situational awareness that is the same from corps to team level.

The horizontal line of command and control should also be capabilities based. Leaders across the battlefield should be able to dynamically move forces on the battlefield. For example, as a capabilities-based force working under a single integrated battlefield picture, any leader on the battlefield should have the ability to redirect supporting air assets from one battalion to another with just in time firepower. There will be no need for a constraining, linear thinking series of meetings and boards.

Even operational graphics should undergo serious redesign in the new borderless, shared situational awareness battlefield. Too

constraining and limiting for one's thoughts, operational graphics and control measures will become obsolete because of the common operational picture, combat identification capabilities, and dynamic task organization. Virtual command will be possible because of shared, common situational awareness of both the enemy and friendly forces. In the trisected world where friends and enemies fluctuate, the Army must become flexible enough to adopt these Third Wave characteristics and capabilities.

If a force can achieve results *in absentia* also leads to changes in the concept of command and control. Beyond the idea of rapid strategic mobility and in addition to the other instruments of power that achieve "stand off" outcomes, effects must also be achievable with space-based and remote controlled technologies for "stand off" results. In an age of scarce manpower to fill the military, the Army must rely on precise, small-scale, rapid networks with time definite delivery. There was an ample supply of people to fill the military's ranks in the Industrial Age; fueled by seemingly inexhaustible raw materials, machinery replaced muscle for power and output in the industrial base. In the Information Age, on the other hand, people have once again become a scarce commodity, as the essential raw material is intellectual capital which is not something easily produced. The ideal is to prosecute war from home, thus saving precious brainpower and brawn. Consequently, any forces that will potentially be physically introduced into a theater must be

rapidly deployable, easily sustainable, and precisely matched in skills and number to meet the mission.

A precision force with the proper mix of capabilities must be available to achieve the effects required if a force is deployed to the increasingly common stability and support operations of a trisected world. Foreign Internal Defense must become a centerpiece capability of a force that is culturally and linguistically well prepared. Force multipliers in the Third Wave army will become the indigenous population itself and skills such a port management, supply chain management, civil engineering, judicial and police administration, economic infrastructure development, and health services administration must be part of the engagement plan.

Considering the changes in how the Army is organized and what its roles and missions will be, large, imprecise, lumbering pipelines of matériel will no longer characterize logistical support to war in the Information Age. Smaller, more lethal forces of the Third Wave must rely on precise, small-scale, rapid networks with time definite delivery. Rapid force deployment with logistically tailorable units is required in an environment of precision logistics and precision engagement.

Precision must also be a part of communication and evolution. During the war in Vietnam different groups within the Army talked past each other as they described pieces of the conflict problem instead of the problem as a whole with its insurgency and conventional components.

Similarly, a trisected world with complex, largely dissimilar adversaries requires that the United States instead take a synoptic view of conflicts in order to be adequately prepared for such Gumby warfare. The groups within the Army must adopt similar rates of change so that they are a functional whole and a close community of shared interests, values, and ethos. As the world environment becomes increasingly unstable, the Army community as a single-minded whole must be responsive to Gumby warfare and the ethos of flexibility, cultural sensitivity, and technological savvy it demands.

Success at the tactical, operational, and strategic level requires a trimmer, more efficient, responsive Third Wave Army on call for future Gumby warfare. The wars of tomorrow will be unlike any conflict that man has seen to date. The Army cannot continue to prepare to fight the last war. The United States must be prepared for conflict against each of the societal waves. The leadership of the United States must run twice as fast to maintain the currency in understanding of the changing world around them. If these new skill sets and Information Age roles and missions, force structure, command and control, power projection, use of technology, and logistic competencies are not mastered then the inflexible Industrial Age Army of today will allow the new world order to pass it by.

ENDNOTES

[1] Lewis Carroll (1832–98), A quote of the Red Queen in *Through the Looking-Glass*, ch. 2, (1872) from Microsoft Bookshelf 2000 CD-ROM.
[2] Sun Tzu, *The Art of War*, ed. and trans. Samuel B. Griffith, with a foreword by B.H. Liddell Hart (London: Oxford University Press, 1963; Oxford University Press Paperback, 1971), 84.
[3] Albert Einstein (1879–1955), Out of *My Later Years*, ch. 14 (1950) from Microsoft Bookshelf 2000 CD-ROM.
[4] Carl von Clausewitz, *On War*, ed. Michael Howard and Peter Paret (Princeton, New Jersey: Princeton University Press, 1976), 593.
[5] Alvin and Heidi Toffler, *Creating a New Civilization: The Politics of the Third Wave*, with a foreword by Newt Gingrich (Atlanta: Turner Publishing, Inc. 1995, The Progress & Freedom Foundation, 1994), 14,21.
[6] Toffler, Alvin and Heidi, *Creating a New Civilization: The Politics of the Third Wave*, with a foreword by Newt Gingrich (Atlanta: Turner Publishing, Inc. 1995, The Progress & Freedom Foundation, 1994), 22, 31.
[7] Alvin and Heidi Toffler, *Creating a New Civilization: The Politics of the Third Wave*, with a foreword by Newt Gingrich (Atlanta: Turner Publishing, Inc. 1995, The Progress & Freedom Foundation, 1994), 31.
[8] ENIAC is the acronym for Electronic Numerical Integrator And Computer. Widely regarded as the first truly electronic computer, ENIAC was developed between 1942 and 1946 at the University of Pennsylvania to use in military research. It weighed 30 tons and occupied 1800 square feet of space. Microsoft Bookshelf 2000 Encyclopedia CD-ROM.
[9] Alvin and Heidi Toffler, *Creating a New Civilization: The Politics of the Third Wave*, with a foreword by Newt Gingrich (Atlanta: Turner Publishing, Inc. 1995, The Progress & Freedom Foundation, 1994), 31.
[10] Alvin and Heidi Toffler, *Creating a New Civilization: The Politics of the Third Wave*, with a foreword by Newt Gingrich (Atlanta: Turner Publishing, Inc. 1995, The Progress & Freedom Foundation, 1994), 31.
[11] The European Union (EU) is a "supranational organization dedicated to increasing economic integration and strengthening cooperation among its member states. The European Union was established on November 1, 1993, when the Maastricht Treaty ... was ratified by the 12 members of the European Community." Microsoft Bookshelf 2000 CD-ROM.
[12] Edward O. Wilson, *Consilience* (New York: Vintage Books, 1998), 141.
[13] Edward O. Wilson, *Consilience* (New York: Vintage Books, 1998), 148. The term meme is defined as the basic elemental unit of culture. Wilson refers in his text to other authors' terms that have been used to describe culture units: "mnemotype, idea, idene, meme, sociogene, concept, culturgen, and culture type."
[14] Stephen J. Blank, Lawrence E. Grinter, Karl P. Magyar, Lewis B. Ware, and Bynum E. Weathers, *Conflict, Culture, and History: Regional Dimensions* (Maxwell Air Force Base, Alabama: Air University Press, 1993), 117, 118.
[15] Kenneth Boulding, *The Meaning of the Twentieth Century* (New York: Harper, 1964) quoted by Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 34.
[16] J.J.L. Duyvendak trans. The Book of Lord Shang (London: Arthur Probsthain, 1963) quoted by Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 34.

[17] Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 34.
[18] Predatory logistics is defined as supplying a force from the area in which it occupies. An example would be taking and slaughtering a local farmer's cattle in order to feed a unit on maneuvers.
[19] Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 36.
[20] Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 35.
[21] Karl A. Wittfogel, *Oriental Despotism: A Comparative Study of Total Power* (New Haven, CT: Yale University Press, 1964) quoted by Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 35.
[22] Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 36.
[23] Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 36.
[24] J.J.L. Duyvendak trans. The Book of Lord Shang (London: Arthur Probsthain, 1963) quoted by Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 34.
[25] Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 37.
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[27] Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 40.
[28] Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 38.
[29] Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 39,40.
[30] Alvin and Heidi Toffler, *War and Anti-War: Survival at the Dawn of the 21st Century* (Boston: Little, Brown and Company, 1993), 67.
[31] Michael Howard, "The Use and Abuse of Military History," *Parameters*, March 1981, 14.
[32] Alvin and Heidi Toffler, *Creating a New Civilization: The Politics of the Third Wave*, with a foreword by Newt Gingrich (Atlanta: Turner Publishing, Inc. 1995, The Progress & Freedom Foundation, 1994), 33.
[33] Qiao Liang and Wang Xiangsui, *Unrestricted Warfare* (Beijing: PLA Literature and Arts Publishing House, 1999), 14, 17.
[34] United States Army doctrine defines center of gravity as "the hub of all power and movement upon which everything depends. It is that characteristic, capability, or location from which enemy and friendly forces derive their freedom of action, physical strength, or will to fight." Department of the Army, FM 100-5, *Operations*, (Fort Monroe, VA: US Army Training and Doctrine Command, 1993), 6-7.
[35] According to recently published doctrine, the four types of operations that the Army conducts within the larger joint framework of war and military operations other than war are offense, defense, stability, and support operations (ODSS). Department of the Army, *FM 100-5 Content Summary*, (Fort Monroe, VA: US Army Training and Doctrine Command, 1 February 2000), 23.
[36] Lewis Sorley, *Honorable Warrior: General Harold K. Johnson and the Ethics of Command*, (Lawrence, Kansas: University Press of Kansas, 1998), 228.
[37] "The PROVN Study "was conducted by ten carefully chosen and talented officers of diverse backgrounds and experience...The specified mix was a historian, a political

scientist, an economist, a cultural anthropologist, and specialists in intelligence, military operations, psychological operations, and economic assistance..." Lewis Sorley, *Honorable Warrior: General Harold K. Johnson and the Ethics of Command*, (Lawrence, Kansas: University Press of Kansas, 1998), 229.

[38] Department of the Army, *A Program for the Pacification and Long-Term Development of Vietnam (PROVN)*, (Washington, D.C.: Department of the Army, 1 March 1966), vii.

[39] Department of the Army, *A Program for the Pacification and Long-Term Development of Vietnam (PROVN)*, (Washington, D.C.: Department of the Army, 1 March 1966), v.

[40] Carl von Clausewitz, *On War*, ed. Michael Howard and Peter Paret (Princeton, New Jersey: Princeton University Press, 1976), 481.

[41] Ronald Reagan (b. 1911) quoted in the *Guardian* (London, 14 June 1989) from Microsoft Bookshelf 2000 CD-ROM.

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